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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/394,379	09/10/1999	KYOUNG SUB KIM	008733-D7151	4146

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EXAMINER

QI, ZHI QIANG

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 05/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/394,379

Applicant(s)

KIM, KYOUNG SUB

Examiner

Mike Qi

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 and 10-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10-26, 29 and 32 is/are rejected.
- 7) ☒ Claim(s) 27, 28, 30 and 31 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 12, 2004 has been entered.

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-8, 10-23, 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant admitted prior art (AAPA) in view of US 5,739,880 (Suzuki et al).

Claims 1, 15, 25 and 26, AAPA discloses (page 2, line 24 – page 4, line 20; Figs.1-2 of the specification) a liquid crystal display device having light source (20) and comprising:

(concerning claims 1 and 15):

- a first substrate (4);

- a second substrate (6) having first and second surfaces (upper and lower surfaces), wherein the first surface (upper surface) is disposed against the first substrate (4);
- a black pattern (24) (non-transparent film) is printed on the left edge of the protective sheet (10a) and it is on the lower surface of the second substrate (6);
- a sheet material (10) disposed between the light source (20) and the second substrate (6), and at least a portion of one edge (such as the right edge) of the sheet material (10) is not directly under the black pattern (24) (the non-transparent film);

(concerning claims 25-26)

- the black pattern (24) (non-transparent film) does not overlap at least of one edge (such as the right edge) of the sheet material (10).

AAPA does not expressly disclose a non-transparent film coated on a periphery of the second surface (lower surface) of the second substrate.

However, Suzuki discloses (col.12, line 28 – col.15, line 51; Figs.2-9) that a liquid crystal display device having a shield tape (TAPE) is stuck to the lower face of the lower substrate (SUB1) at the portion where the seal member (SL) and the black matrix (BM) are not overlapped, and the shield tape (TAPE) is preferable black, and the shielding means is a shielding coating film, so as to prevent the leakage of the back light (BLL).

The shield tape (TAPE) is along the seal member (SL) (see Figs. 2 and 9), such that the

shield tape (TAPE) is coated on the periphery of the lower face of the lower substrate to block the light emitted from the light source.

Suzuki indicates (col.15, lines 3-11) that the shield tape (TAPE) is stuck to the outside of the substrate (SUB1), and the light (BLL) emitted from the back light is interrupted at the portion other than the display region by the black matrix (BM) and the shield tape (TAPE), so that a color liquid crystal display element having an excellent display quality.

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to use a non-transparent black film coated on a periphery of the lower surface of the lower substrate as claimed in claims 1, 15, 25 and 26 for preventing the light leakage from the back light and achieving an excellent display quality.

Claims 2 and 16, AAPA discloses (Figs.1-2) that a black matrix (26) (non-transparent material) is formed in the periphery portion and is formed on the lower surface (second surface) of the upper substrate (4) (first substrate).

Claims 3 and 17, AAPA also discloses (Figs. 1-2) that a black matrix (26) (non-transparent material) is formed on the upper surface (first surface) of the lower substrate (second substrate), and that would have been at least an obvious variation according to the different application to improve the display contrast.

Claim 10, AAPA (Figs.1-2) discloses that a sheet material (10) includes a protective sheet (10a), a prism sheet (10b) and a diffusion sheet (10c) and disposed between the light source (20) and the second substrate (6).

Claim 11, AAPA discloses (Fig.1-2) that the black matrix (BM) (26) (non-transparent material) is formed in the periphery portion and is formed on the lower surface (second surface) of the upper substrate (4) (first substrate).

Claims 6, 12 and 20, lacking limitation is such that the non-transparent film and the non-transparent material are partially overlapping throughout the periphery of the second substrate.

However, Suzuki discloses (Fig.9) that the shield tape (TAPE) (non-transparent film) and the black matrix (BM) (non-transparent material) are partially overlapping throughout the periphery of the lower substrate (SUB1) (second substrate), so as to block the light leakage from the backlight (BLL).

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to arrange the non-transparent film and the non-transparent material are partially overlapping throughout the periphery of the second substrate for blocking the light leakage from the backlight.

Claims 4-5, 7-8,13-14,18-19, 21-22, AAPA discloses (Figs.1-2) the non-transparent material is a black matrix (26); the non-transparent film is a black pattern (24) (black film).

Claim 23, AAPA discloses (page 4, lines 3-5 of the specification) that the black pattern (24) (black film) is printed.

3. Claims 24 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant admitted prior art (AAPA) in view of US 5,739,880 (Suzuki et al) and US 6,504,589 (Kashima et al).

Claim 24, AAPA discloses (page 2, line 24 – page 4, line 20; Figs.1-2 of the specification) a liquid crystal display device having light source (20) and comprising:

- a first substrate (4);
- a second substrate (6) having first and second surfaces (upper and lower surfaces), wherein the first surface (upper surface) is disposed against the first substrate (4);
- a black pattern (24) (non-transparent film) is printed on the left edge of the protective sheet (10a) and it is on the lower surface of the second substrate (6);
- a sheet material (10) disposed between the light source (20) and the second substrate (6).

AAPA does not expressly disclose a non-transparent film coated on a periphery of the second surface (lower surface) of the second substrate, and the sheet material comprising an uppermost sub-layer having a first length and at least one underlying sub-layer arranged under the uppermost sub-layer and having a second length, and the first length is substantially equal to the second length.

However, Suzuki discloses (col.12, line 28 – col.15, line 51; Figs.2-9) that a liquid crystal display device having a shield tape (TAPE) is stuck to the lower face of the lower substrate (SUB1) at the portion where the seal member (SL) and the black matrix (BM) are not overlapped, and the shield tape (TAPE) is preferable black, and the shielding means is a shielding coating film, so as to prevent the leakage of the back light (BLL).

The shield tape (TAPE) is along the seal member (SL) (see Figs. 2 and 9), such that the

shield tape (TAPE) is coated on the periphery of the lower face of the lower substrate to block the light emitted from the light source.

Suzuki indicates (col.15, lines 3-11) that the shield tape (TAPE) is stuck to the outside of the substrate (SUB1), and the light (BLL) emitted from the back light is interrupted at the portion other than the display region by the black matrix (BM) and the shield tape (TAPE), so that a color liquid crystal display element having an excellent display quality.

Still lacking limitation is such that the sheet material layers have equal lengths.

However, Kashima discloses (col.1, lines 21-67; Fig.11) that a typical structure of a conventional backlight system and an LCD device in which using diffusion sheet (25) to diffuse the light emitted from the light guide (22) and using prism sheet (26) to converge the light emitted from the light guide (22), and the diffusion sheet (25), the prism sheet (26) having equal lengths (see Fig.11). Because the light emitted from the light guide is diffused by the diffusion sheet, and is converged by the prism sheet to enter the liquid crystal cell, so that the luminance would be enhanced and the viewing angle would be enlarged. Conventionally, using a protection sheet to protect the underlying sheet from the dust or scratches.

The evidentiary support is that Kashima discloses (col.1, lines 20-33; Fig.1) that the structure having diffusion sheet and prism sheet (equal length) is a typical conventional backlight system structure.



Since using equal lengths for the protection sheet, prism sheet and the diffusion sheet would be easy to manufacture and would have sufficient luminance in a high efficiency.

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to use a non-transparent black film coated on a periphery of the lower surface of the lower substrate and to use equal lengths for the protection sheet, prism sheet and diffusion sheet as claimed in claims 24 for preventing the light leakage from the back light and achieving an excellent display quality and obtaining sufficient luminance in a high efficiency.

Claim 29, AAPA discloses (Fig.1) that one edge of the sheet material (10) is adjacent to the light source such as the left edge.

4. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant admitted prior art (AAPA) in view of US 6,313,891 (Nagakubo et al).

Claim 32, AAPA discloses (page 2, line 24 – page 4, line 20; Figs.1-2 of the specification) a liquid crystal display device having light source (20) and comprising:

- a lamp (20);
- a light guide (12);
- a lamp housing (22) surrounding the lamp and arranged on a portion of the light guide;
- a first substrate (4) over the light guide;
- a second substrate (6) between the light guide (12) and the first substrate (4);

- a sheet material (10) between the light guide (12) and the second substrate (6), and the sheet material (10) having uppermost sub-layer such as protective layer (10a).

AAPA does not explicitly disclose that the uppermost sub-layer is set apart from the lamp housing.

However, Nagakubo discloses (col.1, lines 13 – 33; Fig.11) that a conventional ordinary liquid crystal display device is arranged such that successively laminated on the back surface of a liquid crystal panel (31) are a protection/diffusion sheet (32), lens sheets (33), and the uppermost sub-layer is the protection/diffusion sheet (32) which is set apart from the lamp holder (37) for improving the brightness of light. It was common and known in the art that the lamp housing generates heat so that the uppermost sub-layer is set apart from the lamp housing would obtain more protection.

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to arrange the uppermost sub-layer apart from the lamp housing as claimed in claim 32 for achieving more protection and improving the brightness of light.

#### ***Allowable Subject Matter***

5. Claims 27, 28, 30 and 31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record neither discloses nor teaches a liquid crystal display device comprising various elements as claimed, more specifically, as the following:

a portion of one edge of the sheet material adjacent to the light source is not directly under the non-transparent film or the non-transparent film does not overlap a portion of one edge of the sheet material adjacent to the light source that is the black film (52) as shown in Fig.3 [claims 27, 28, 30 and 31].

The closest references AAPA and US 5,739,880 (Suzuki et al), US 6,147,724 (Yoshii et al) discloses that a liquid crystal display device with back light and light shielding films formed in the peripheral of the LCD and having black film to prevent the back light from leakage, but the prior art of record do not disclose that the edge of the sheet material (protection layer, prism layer, diffusion layer) adjacent to the light source is not directly under or overlap the black film as claimed in the claims 27, 28, 30 and 31.

### ***Response to Arguments***

7. Applicant's arguments filed on March.9, 2004 have been fully considered but they are not persuasive.

According to the limitations claimed in the independent claims one edge of the sheet material can be any edge, and AAPA (Fig.1) discloses that a portion of one edge (such as the right edge) of the sheet material (10) is not directly under the black pattern (24) (the non-transparent film). The reference such as Suzuki discloses (col.12, line 28 – col.15, line 51; Figs.2-9) that a liquid crystal display device having a shield tape

(TAPE) (black film) to prevent the leakage of the backlight. The shield tape (TAPE) is along the seal member (SL) (see Figs. 2 and 9), such that the shield tape (TAPE) is coated on the periphery of the lower face of the lower substrate to block the light emitted from the light source.

### ***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mike Qi whose telephone number is (571) 272-2299. The examiner can normally be reached on M-T 8:00 am-5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2871

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mike Qi  
May 19, 2004

  
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